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Book Review

The Kruger Experience

Johan T du Toit, Kevin H Rogers and Harry C Biggs

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What does an average European and American tourist want to experience during a fortnight-long visit to South Africa? I bet it would be to see Cape Town with its Table Mountain, Minstrels, Cape Point and proteas and, of course, one must not miss 'the Kruger'. This fascinating park — as big as Belgium — is an undisputed member of the Big Three of the animal paradise clubs of the world, the other two being Yellowstone and Serengeti. An average tourist usually experiences the Kruger National Park as a big zoo (by not being allowed to leave the safety of the vehicle at will) and a great outdoor experience, during which one can enjoy, relax, be entertained and educated, all in one go. Very few realize that the Kruger National Park is not only a major tourist attraction but it is a big and great company — the largest employer in the region and a respectable research facility too.

In April 2002 more than 100 ecologists met in the Berg-en-Dal Camp (Kruger) to celebrate the Park's centenary. Their talks served as the basis of this remarkable book. The editors have done a very good job by stratifying the book into four parts and by linking them into an organic whole. They have, thus, created a document of great value — both in terms of scientific, and historical, perspectives.

Part 1 is devoted to a historical and conceptual framework. David Mabunda (the current CEO of the Kruger National Park) and his colleagues offered a brief but valuable historical account on the people and events which made the Park world-renowned. Steve Pickett (one of the major champions of the non-equilibrium hypothesis about the organization of ecosystems) and his colleagues, Mary Cadenasso and Tracy Benning, contributed an account of the biotic and abiotic variability as key determinants of savanna heterogeneity — a core section of this book. Kevin Rogers then elaborated on the ways in which the heterogeneity paradigm has been adopted in the management of protected savannas. In the final chapter of this section, Harry Biggs and Kevin Rogers have summarized the core elements of the New Kruger Management System (including the Thresholds of Potential Concern) and the challenges this system presents.

Part 2 is concerned with the main agents, substrates and controllers (as defined by Pickett *et al*. in Chapter 2 of Part 1). Physical templates including geology, soil, climate, water and vegetation are substrates, while fire, herbivory and drainage are some agents. The availability of surface water as well as land-se in upper catchments of the Kruger's rivers are examples of controllers. Mary Scholes and her colleagues elaborate on biogeochemistry (cycling of elements) in the Kruger, while Brian van Wilgen, assisted by four other experts, recognizes that fire is a driver of ecosystem variability, particularly in savanna.

Surface water availability is the subject of the chapter co-authored by Angela Gaylard, Norman Owen-Smith and Jessica Redfern. Finally, the extremely important role of rivers and associated heterogeneity on structuring, functioning and management of the Park has been featured in another core chapter of this book, wrapping up the section devoted to the abiotic template.

Part 3 describes elements of the biotic template, putting clear emphasis on interactions between the biotic components. The theme is briefly introduced in the general account by Robert Naiman *et al*. on the interaction between species and ecosystem characteristics. This, the most extensive part of the book, documents – in nine chapters – the state of present knowledge of 'the Kruger' ecosystems, highlighting strong and weak points. The ecology of elephants, ungulates and carnivores has been well-studied in the Kruger (as is shown by very informative chapters by Johan du Toit, Norman Owen-Smith, Joseph Ogutu, Ian Whyte *et al*. as well as Gus Mills and Paul Funston). The chapter by Roy Bengis *et al*. makes an important point about the wildlife diseases and veterinary controls in savannas. There is still a lot of work to do on insect and avian ecology, as is shown by relatively short chapters by Alan Kemp *et al*. (birds) and Leo Braack and Per Kryger (insects). My favourite chapter — one on the vegetation dynamics by Bob Scholes, William Bond and Holger Eckhardt — nicely summarizes the link between vegetation and climate, vegetation and disturbance, and the control pathways in ecosystem processes. Still, it leaves a reader in anticipation of learning more about vegetation-dynamic patterns. This section also includes an account of the deafening silence on the (presumably) longest-lasting fire experiment ever known to ecology — the data still buried deep in the archives. We learn, however, later in the book (Chapter 23 by Gus Mills *et al*., p 493), that the overdue data-mining process has already begun!

Part 4 pays tribute to humankind and acknowledges its influence on the ecosystems of the Kruger's savannas and rivers. Stephanie Freitag-Ronaldson and Llewellyn Foxcroft's chapter on anthropogenic influences sets the scene for the

wildlife-human interactions in the Kruger. Sharon Pollard *et al.*'s chapter looks beyond the fence and analyses the set-up of the Kruger in the Lowveld, especially from the land-use perspective. Jay O'Keeffe and Kevin Rogers make us aware of the importance of the Lowveld rivers in bringing the problems of the heavily-used river basins into seemingly isolated management islands such as the Kruger. The Kruger Rivers Research Programme was one of the major vehicles for bringing new ideas into management of the Kruger resources by recognizing the value of environmental heterogeneity. The Harry Bigg chapter on integration of sciences is about the linking of different areas of scientific knowledge generated in and around Kruger. The final chapter, which I would also classify as a core section of the book, summarizes the Kruger experience in terms of new perspectives faced by the scientific community, Park management, visitors, and the surrounding communities.

The underlying theme of all four parts is 'change' — change in how scientists have been looking into questions of the role of heterogeneity in savanna (and associated) ecosystems, how managers have been looking into levels of controlling these ecosystems, and finally how society understands the role of the Park. The scientific approach towards management of the Park's resources has always been written in big letters in the Kruger.

The book documents the process of two major shifts – experienced during the past ten years or so – in the management of park. There was a shift from being an exclusive playground for the privileged to a multi-purpose hub of activities. This was achieved by reaching out to the surrounding communities — there is no conservation without social context — as well as to those who were previously excluded from enjoying the Park. There was also a major shift in scientific thinking and the application of scientific knowledge of management, away from the ideas of balance and equilibrium fought for by laborious (over)control to a new non-equilibrium paradigm, recognizing heterogeneity as its major element and driver.

The book is well edited, and small errors such as the misspelling of scientific names (*Grewia bicolor, Phragmites, Phyllanthus, Trichilia, Peltophorum*, all on page 200) or using two different names for the same taxon (*Maytenus senegalensis* Tab. 14.1 and *Gymnosporia senegalensis*, p 220 and 226; *Acacia albida* and *Faidherbia albida* on the same page, 107) do not diminish the value of the book at all. And yes, Yellowstone National Park does have megaherbivores (Tab. 7-4): bison, elk and moose.

The Kruger Experience is a milestone in the Kruger's history and a milestone in South African ecological publications. The price (for a book produced overseas and the extent of this book) is reasonable, although the publishers cannot count on huge sales. Every serious ecologist interested in savanna ecosystems or in conservation issues in general should have a copy!

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